

SHAMIN, N.A., inzhener, laureat Stalinskoy premii, redaktor; MATVEYEVA,  
~~Is, N.~~, tekhnicheskiy redaktor.

[Efficient use of ingots in forging; work practice of the Novo-  
Kramatorsk Stalin Metallurgical Plant in Elektrostal'] Ratsional'-  
noe ispol'zovanie slitkov dlia pakevok; iz opyta NKMZ imeni Stalina  
g. Elektrostal'. Pod red. N.A. Shamina. Moskva, Gos. nauchno-tekhn.  
izd-vo mashinostroit. lit-ry, 1953. 25 p. [Microfilm] (MLRA 9:6)

1. Moscow. Gosudarstvennyy soyuznyy institut Orgtyazhmash.  
(Steel ingots) (Forging)

STATE TRUST FOR THE INTRODUCTION OF HIGH-PRODUCTION TECHNOLOGY  
AND PRODUCTION ORGANIZATION IN THE HEAVY MACHINE BUILDING INDUSTRY

SOV/137-57-10-19042

Translation from Referativnyy zhurnal Metallurgiya, 1957, Nr 10, p 87 (USSR)

AUTHOR Shamin, N. A.

TITLE Some Problems of the Production of Rational Rolled Sections (O nekotorykh voprosakh proizvodstva ratsional'nykh profiley prokata)

PERIODICAL V sb : Ratsionalizatsiya profiley prokata. Moscow, Profizdat, 1956. pp 367-369

ABSTRACT The production of economical rolled sections (S) affords a saving of metals and of socially-necessary labor. At the present time possibilities exist for the production of economical S. These consist in the more rational distribution of the metal across the section. The possibilities for the rolling of wide-flanged beams are not fully employed. Little use is made of the method of extrusion of economical S and of continuous casting of billets for R. The pricing policy for rolled metal also reveals a number of shortcomings, inasmuch as thin sheet is more expensive than thick, low-alloy steel is more expensive than carbon steel, etc.

Card 1/1

V.O.

SHAMIN, N.A.

Project of standards for manganese ores. Standartizatsiia. no.5:83-  
84 S-0 '56. (MIRA 10:1)

(Manganese ores--Standards)

SHAMIN, N.A., inzhener.

Selective control, Standartizatsiia no.2:18-22 Mr-Ap '57.  
(MLRA 10:6)

1. Komitet standartov, mer i izmeritel'nykh priborov.  
(Quality control)

SHAMIN, N.A., inzhener.

Standardizing the qualities of steel. Standartizatsiia no.2:28-31  
Mr-Ap '57. (MIRA 10:6)

1. Komitet standartov, mer i izmeritel'nykh priborov.  
(Steel--Standards)

AUTHOR: Shamin, N.A., Engineer, 28-4-13/35

TITLE: Basic Standards for Structural and Machine-building Steel  
(Bazovyye standarty na konstruksionnyu i mashinostroitel'nyu stal')

PERIODICAL: Standartizatsiya, 1957, # 4, pp 49-53 (USSR)

ABSTRACT: The article contains information on 4 new standards which are in force since 1 January 1958, replacing the old analogous standards. The new standards are the ГОСТ 380-57 - "Carbon Steel of Common and Higher Quality - Grades and General Technical Conditions"; 1050-57- "Quality Carbon Steel for Machinebuilding"; 5058-57- "Low-Alloy Structural Steel"; 4543-57- "Alloyed Machine-building Steel". The information given includes complete data on the designations and compositions of the new and old grades. ГОСТ 380-57 is stated to have great economic importance, for about 90% of all steel produced in USSR is of this class. The mechanical properties of quality carbon steel are compared with those of the analogous American and British standards, with the German "Werkstoff-Handbuch" and the Krupp steels, with the conclusion that steel by ГОСТ 1050-52 (obsolete) has a considerably smaller "stretch" than the analogous German steel grades, and that Russian steel with carbon content up to 0.45% has an

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28-5-6/30

AUTHOR: Shamin, N.A., Engineer

TITLE: Standardization Tasks in Metallurgy (Zadachi standartizatsii v metallurgii)

PERIODICAL: Standartizatsiya, 1957, # 5, p 28-32 (USSR)

ABSTRACT: The article presents a general review of Soviet standardization beginning with the foundation of the Committee of Standards in 1925. The standardized metal production items are listed and the numbers of existing standards are given.

The new classification of steel is based on the internationally used preference number series system (Renard series). The author claims that Soviet metallurgists are producing better steel and that Soviet standards require higher purity of initial materials than the foreign standards.

Standardization is planned for the metals titanium, tungsten, molybdenum, bismuth, osmium, ruthenium, barium, strontium, berillium, lanthanum, cerium, zirconium, gallium, hafnium, germanium, tellurium, niobium, and such special alloys as soft-magnetic and hard-magnetic alloys, alloys with predetermined linear expansion coefficient, alloys with special elastic properties, heat-resistant alloys, and for new evaluation methods for the depth of decarbonized and hardened layers of

Card 1/2

SEAMEN, N. N. and MANGYLOV, S. YE. (USSR)

"Application of Certain Physicochemical Methods for Controlling  
the Salting out of Pancreas Enzymes."

Report presented at the 5th International Biochemistry Congress,  
Moscow, 10-16 Aug 1961



SHAMIN, P. A., Cand Tech Sci -- (diss) "Methods of the control and regulation of the distance of a burner from the surface of demolition in thermal boring of rock." Alma-Ata, 1960. 28 pp with illustrations; (Ministry of Higher and Secondary Specialist Education USSR, Kazakh State Agricultural Inst, Chair of the Theoretical Foundations of Electrical Engineering); 150 copies; price not given; bibliography at end of text; (KL, 28-60, 162)

SHAMIN, P.A., inzh.

Possible methods of measuring and controlling the distance between the burner and the drilling surface in thermal piercing. Izv.vys. ucheb. zav.; gor. zhur. no.3:58-78 '60. (MIRA 14:5)

1. Kazakhskiy sel'skokhozyaystvennyy institut.  
(Rock drills)

BRICHKIN, A.V.; GEMBACH, A.N.; SHAMIN, P.A.

Automatic control of the jet burner feed in thermal piercing.  
Trudy Inst. gor. dela AN Kazakh, SSR 4:99-114 '60.

(MIRA 13:9)

(Boring machinery)

(Automatic control)

BRICHKIN, A.V.; SHAMIN, P.A.

Acoustic and optical properties of the torch in jet piercing.  
Trudy Inst. gor. dela AN Kazakh. SSR 6:100-113 '60. (MIRA 13:12)  
(Rock drills) (Jets)

BRICHKIN, A.V.; SHAMIN, P.A.

Automatic control incorporating amplidynes and self-excitation  
for the electric drive of the jet-piercing burner feed. Vest.  
Kazakh.SSR 16 no.9:32-43 S '60. (MIRA 13:9)  
(Boring machinery) (Automatic control)

BRICHKIN, A.V.; SHAMIN, P.A.

Automatic contro of thermal drilling by means of an optimalizing  
controller and radioactive transducer of operation. Izv.AN Kazakh.  
SSR.Ser.gor.dela no.2:51-56 '61. (MIRA 15:2)  
(Boring) (Automatic control)

BRICHKIN, A.V.; SHAMIN, P.A.

Physics of hard mineral rock disintegration by thermal jets.  
Izv. vys. ucheb. zav.; tsvet. met. 5 no.4:3-13 '62. (MIRA 16:5)

1. Kazakhskiy politekhnicheskii institut, kafedra razrabotki  
rudnykh mestorozhdeniy.  
(Boring) (Gas dynamics)

BRICHKIN, A.V., prof., doktor tekhn.nauk; BELENKO, N.P., kand.tekhn.nauk;  
BOLOTOV, A.V., inzh.; GENBACH, A.N., inzh.; SHAMIN, P.A., kand.  
tekhn.nauk; SHERSTYUK, B.F., inzh.

Experimental studies of the parameters of the stream of a jet-  
piercing burner. Izv. vys. ucheb. zav.; gor. zhur. 6 no.3:  
52-58 '63. (MIRA 16:10)

1. Kazakhskiy politekhnicheskoy institut. Rekomendovana kafedroy  
razrabotki rudnykh mestorozhdeniy. 2. Chlen-korrespondent AN  
KazSSR (for Brichkin).



BEICHKIN, A.V., prof.; SHAMIN, P.A., kand.tekhn.nauk

Apparatus for studying the jet flame of jet piercing equipment.  
Izv.vys.ucheb.zav.:gor.zhur. 7 no. 1:179-188 '64. (MIRA 17:5)

1. Kazakhskiy politekhnicheskii institut. Rekomendovana  
kafedroy razrabotki rudnykh mestorozhdeniy.

RODIONOV, V.N.; ROMASHOV, A.N.; SHAMIN, V.M.

Arranging the underground storage of explosives. Shakht.stroi.  
no.9:12-15 S '59. (MIRA 12:12)

1. Institut khimicheskoy fiziki AN SSSR.  
(Mining engineering) (Explosives--Storage)

KIRILLOV, F.A.; MEDVEDEV, S.V.; SHAMIN, V.M.

Instructions on studying the seismic action of blasts on  
structures. Trudy Inst. fiz. Zem. no.21. Vop. inzh. seism.  
no.6:118-122 '62. (MIRA 15:9)

(Blasting)  
(Strains and stresses)

SHAMIN, V.M.

seismic effect of blasting on mines. Trudy Inst. fiz. Zem. no.33.  
Vop. inzh. seism. no.9:92-99 '64. (MIRA 17:12)

MARTYNOV, M. I. (auth.), Pribladya i obshchitye. BODILENKO, I. F., TOKAREV, M. N.;  
SHAMEN, V. P., LOBKOVA, M. A.

Automatic control of water boilers. Ispol'. gaza v nar. khoz.  
(MIRA 18.9)  
no. 1220-230 '83.

1. Otdel konstruirovaniya sredstv mekhanizatsii i avtomatiki  
Sverdlovskogo gosudarstvennogo nauchno-issledovatel'skogo i  
proyektnogo instituta po ispol'zovaniyu gaza v narodnom  
khozyaystve.

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S/089/62/012/001/005/019  
B102/B138

21.4500

AUTHORS: Mal'tsev, Ye. D., Yudin, F. P., Shamin, V. S., Dolgikh, P. F.

TITLE: The thermal factor in the problem of liquid radioactive waste disposal in the Earth's interior

PERIODICAL: Atomnaya energiya, v. 12, no. 1, 1962, 36 - 39

TEXT: The temperature field is considered, which is formed in the neighborhood of liquid hot waste disposed in porous formations of the Earth's crust. A plane layer is considered, of thickness  $2h$  occupying a region  $-\infty < x, y < \infty$ ,  $-h \leq z \leq h$ . At  $x = y = 0$ ,  $-h \leq z \leq h$  there are assumed to be continuous sources incompressible liquid with a total constant power  $Q$ ,  $Q = 4\pi mhr \, dr/d\tau$ . The temperature field is given by

$$u(r, z, t) = \frac{A}{2k\sqrt{\pi}} \int_0^\infty \frac{e^{-\theta r^2}}{\sqrt{\theta}} d\theta \int_{-h}^h e^{-\theta(z-\zeta)^2} d\zeta \int_0^{\sqrt{t-\frac{1}{4a^2\theta}}} Q e^{-(\theta+\beta)\rho^2} I_0(2\rho r\theta) d\rho. \quad (7).$$

The temperature is given an excessive value corresponding to an initial  
Card 1/3

The thermal factor in the...

S/089/62<sup>32002</sup>/012/001/005/019  
B102/B138

Eng. Progress, 52, No. 10, 417 (1956); R. Schechter, L. Gloyna. Sawage  
and Ind. Wastes, 31, No. 10, 1165 (1959).

SUBMITTED: June 29, 1961

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Card 3/3

SHAMINA, I. A.

Moscow. Tsentral'nyi Nauchno-Issledovatel'skii Institut Tekhnologii i Mashinostroeniia. (The Central Scientific-Research Institute for Technology and Machine Construction). Handbook on construction steels. Edited by Il A. Shamina. 181 p.

City: Moscow

Publisher:

~~Reproduction~~ The Gov. Sci-Tech. Pub. Est. for machine construction Lit.

Date: 1946

Available: Library of Congress

Source: Monthly List of Russian Accessions, Vol. 4, No. 4, July 1951



ACC NR: AF7012434

SOURCE CODE: UR/0419/000/003/0022/0028

AUTHOR: Kuchkayeva, I. K.; Rakhovskaya, S. M.; Klyukina, N. G.; Tsenter, L. A.; Shamina, I. S.

ORG: Saratov State University im. N. G. Chernyshevskiy (Saratovskiy gosudarstvennyy universitet)

TITLE: Absorption-structural properties of modified natural sorbents from the volga region

SOURCE: AN BSSR. Vestsi. Seriya khimichnykh navuk, no. 3, 1966, 22-28

TOPIC TAGS: mineral, adsorption, / Lower Volga region, Central Volga region

SUB CODE: 08,07

ABSTRACT: The Lower and Central Volga regions abound in natural sorbents such as diatomites, tripoli earths, opokas. In this connection the authors investigated the effect of calcining temperature on the adsorption properties of specimens of these minerals, which also were subjected to radiographic, chromatographic, and other tests. It was established that the applicability of these natural sorbents may be widened if they are subjected to proper types of treatment such as chemical activation with acids to increase pore volume and to increase the number of hydroxyl groups at the surface of the activated specimens. These hydroxyl groups are chemically active sites with respect to the adsorp-

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ACC NR: AP7012434

tion of polar substances such as methyl alcohol. Hydrophobic properties may be enhanced by adding ferric chloride as activator. Orig. art. has: 5 figures, 1 formula and 2 tables. JPRS: 40,422

2/2

TOPCHIEVA, K.V.; RAKHOVSKAYA, S.M.; KUCHKAYEVA, I.K.; SHAMINA, I.S.;  
YURKEVICH, A.A.

Modifications of the supporting structure of phosphoric acid  
catalysts in the ethylene hydration process. Neftekhimiia 3  
no.2:271-275 Mr-Apr '63. (MIRA 16:5)

1. Saratovskiy gosudarstvennyy universitet imeni N.G.Chernyshevskogo,  
Nauchno-issledovatel'skiy institut khimii, Moskovskoy gosudarstvennyy  
universitet imeni Lomonosova i Leningradskiy tekhnologicheskoy  
institut imeni Lensova.

(Phosphoric acid) (Ethylene) (Hydration)

ASHAVSKIY, M.S.; SHAMINA, M.S. (Moskva)

Certain problems of trichomonal infections of the urogenital tract. Urologiia no.2:48-52 Ap-Je '55. (MLRA 8:10)

1. Iz kozhno-venerologicheskogo otdeleniya (zav.dotsent V.P.Volkov) bol'nitsy medsantrud (glavnyy vrach A.P.Timofeyeva)

(URETHRITIS, bacterioloty,  
Trichomonas, in males)

(TRICHOMONIASIS  
urethritis, in males)

SHAMINA, M.S.

Diagnosis of gonorrhea in gynecological consultations. Akush. i  
gin. }} no.2:78-80 Mr-Ap '57. (MLRA 10:6)

1. Iz ob'yedinennoy konsul'tatsii No.11 (zav. T.I.Malanova) pri  
rodil'nom dome imeni Klary TSetkin i kozhno-venerologicheskogo  
otdeleniya (zav. - dotsent V.P.Volkov) bol'nitsy imeni "Medsantrud".  
(GONORRHEA, diag.  
in prenatal consultations)  
(PREGNANCY, in various dis.  
gonorrhea, diag. in prenatal consultations)

TURANOVA, Ye.N.; ANTONOVA, T.N.; BORODOVSKAYA, M.A.; LEVINA, F.A.;  
SHAMINA, M.S.

Trichomycin in the treatment of trichomoniasis in women. Vest.  
derm.i ven. 34 no.9:72-73 '60. (MIRA 13:11)

1. Iz TSentral'nogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (dir. - kand.med.nauk N.M. Turanov) Ministerstva zdoravookhraneniya RSFSR, bol'nitsy imeni Korolenko (glavnyy vrach A.I. Pustovaya), 33-y gorodskoy bol'nitsy (glavnyy vrach P.V. Abashkina), I venerologicheskogo dispansera (glavnyy vrach V.P. Volkov).  
(TRICHOMONIASIS) (ANTIBIOTICS) (VAGINA--DISEASES)

SHAPIRO, S.I.

Dissertation: -- "Frequency Analysis of Seismic Vibrations." Cand Phys Math Sci,  
Geophysics Inst, Acad Sci, USSR, 16 Jun 54 (Vechernyaya Moskva, Moscow, 7 Jun 54)

SO: Sum 318, 23 Dec. 1954.

USSR/Geophysics - Conference

FD-762

Card 1/1 : Pub 44-10/11

Author : Kirillov, F.

Title : Chronicles. Conference of young scientists of the Geophysics Institute, Academy of Scientists of the USSR

Periodical : Izv. AN SSSR, Ser. geofiz., 495-496, Sep-Oct 1954

Abstract : May 17-20, 1954, the Geophysics Institute held a conference at which junior scientific workers participated with 18 reports; e.g. Ye. A. Lyubimova (heating of the Earth), S. L. Solov'yev (intensity of earthquakes in Turkmenia 1912-1951), S. A. Fedotov (wave hodographs), Yu. I. Vasil'yev (use of amplitude data in seismic prospecting), O. G. ~~Shamina~~ (elastic impulses during collapse of rocks in earthquakes), O. I. Silayeva (velocity of propagation of elastic waves in granite, marble, etc.), V. I. Tatarskiy (propagation of waves in medium with random weak inhomogeneity of refraction coefficient), L. P. Zaytsev (reflection of waves from boundary), A. S. Chaplygina (measuring the thermobaric field in the atmosphere by statistical treatment of empiric data).

Institution : --

Submitted : --



SHAMINA, O.G.

Elastic impulses in rock specimens subjected to destructive tests.  
Izv.AN SSSR.Ser.geofiz. no.5:513-518 My '56. (MLRA 9:8)

1. Akademiya nauk SSSR, Geofizicheskiy institut.  
(Seismometry) (Rocks--Testing)

SHAMINA, O.G.

Frequency analysis of seismic oscillations. Izv. AN SSSR, Ser. geofiz.  
no. 8:896-911 Ag '56. (MLRA 10:1)

1. Akademiya nauk SSSR, Geofizicheskiy institut.  
(Seismic waves)

124-11-13248

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 139 (USSR)

AUTHORS: Riznichenko, Yu. V., Silayeva, O. I., Shamina, O. G., Myachkin, V. I.,  
Glukhov, V. A., Vinogradov, S. D.

TITLE: Seismo-Acoustic Methods for the Study of Stress Conditions in  
Mountain Rocks on Samples and In Loco. (Seysmoakusticheskiye  
metody izucheniya napryazhennogo sostoyaniya gornyx porod na  
obraztsakh i v massive.)

PERIODICAL: Tr. Geofiz. in-ta A N SSSR, 1956, Nr 34 (161), pp 74-163

ABSTRACT: The study surveys various methods for the investigation of stress  
conditions in mountain rocks. Principal attention is directed to the  
impulse method and the acoustic method. It is indicated that with an  
increase in pressure the modulus of elasticity grows faster than the  
density. Therefore, the speed of sound, which is proportional to the  
square root of the ratio of the modulus of elasticity and the density,  
increases with increasing pressure; more specifically, the speed of  
sound is proportional approximately to the one-sixth power of the  
pressure. It is noted, further, that the formation of cracks, at the

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49-7-2/14

AUTHORS: Riznichenko, Yu. V. and Shamina, O. G.

TITLE: Elastic waves in a solid stratified medium, using results of studies on two dimensional models. (Ob uprugikh volnakh v tverdogo sloistoy srede po issledovaniyam na dvukhmernykh modelyakh).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.7, pp.855-873 (USSR).

ABSTRACT: The problem of a layer in an elastic medium is considered. The layer is finite or thin compared with the wavelength of the prevalent wave. The layer differs from the surrounding medium in that the velocity of propagation of elastic waves in it is higher than in the surrounding medium. It is called a "high velocity layer" (HVL). The layer may act as a waveguide for the so-called longitudinal slip waves. The problem of the HVL was considered by the present author in a previous paper (Ref.12). Results obtained with a three dimensional model of a thin solid layer in a liquid were used in that paper (Riznichenko et al, Refs.13-15). The present paper is a continuation of the work reported earlier. A two dimensional model of a stratified solid medium was used to study the propagation of elastic waves in a high velocity layer of the kind described above. The waves were

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49-7-2/14

Elastic waves in a solid stratified medium, using results of studies on two dimensional models. (Cont.)

showed that the velocity of propagation of a longitudinal slip wave is higher and the frequency lower, in the case of the thick layer. The difference is of the order of 8% for both the velocity and the frequency. The coefficients of absorption and radiation are much lower in the case of a thick HVL.

There are 15 figures and 27 references, 18 of which are Slavic.

SUBMITTED: January 4, 1957.

ASSOCIATION: Institute of Physics of the Earth, Ac.Sc., U.S.S.R.  
(Akademiya Nauk SSSR Institut Fiziki Zemli).

AVAILABLE: Library of Congress

Card 3/3

49-1-3/16

AUTHORS: Silayeva, O.I. and Shamina, O.G.

TITLE: Propagation of Elastic Impulses in Cylindrical Specimens  
(Rasprostraneniye uprugikh impul'sov v obraztsakh  
tsilindricheskoy formy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya,  
1958, Nr 1, pp.32-45 and 1 plate (USSR)

ABSTRACT: Experiments on the propagation of elastic impulses in  
metallic specimens having a cylindrical form are described.  
An ultrasonic generator BU-4 was used to excite the elastic  
waves. Piezoelectric sources (Rochelle salt) were employed.  
The crystal size was 1 x 1 x 1 cm and the fundamental fre-  
quency of vibration was about 140 kc/s (Ref.31). The  
dependence of the speed of propagation  $V_p$  of longitudinal  
waves on the ratio  $\frac{A}{\lambda}$  (where A is the radius of the rod

and  $\lambda$  the wavelength) can be investigated in two ways.  
One can either vary the frequency of the vibrations keep-  
ing the cross-section of the rod constant or one can vary  
the cross-section of the rod and keep the frequency con-  
stant. The second method was used. Brass rods, having  
the following radii, were employed: 4, 3, 2.5, 2.0, 1.75,  
1.5, 1.27, 1.0, 0.75, 0.5 and 0.25 cm. All the rods were

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49-1-3/15

Propagation of Elastic Impulses in Cylindrical Specimens.

20 cm long. In special cases and in order to increase the accuracy of interpretation of the wave picture, the length was increased to 40 cm. It was established that longitudinal waves can be propagated in specimens of the above type with two wave velocities, one equal to the velocity of propagation of longitudinal waves in an infinite medium, and the other equal to the propagation of longitudinal waves in a thin rod. It has been shown that the latter waves will be formed if the ratio of the radius of the rod to the wavelength is less than 0.17. The results obtained by the authors can therefore be used to choose the dimensions of the specimens under study in such a way that the measured velocity of longitudinal waves corresponds to either the velocity in an infinite medium or a thin rod. Yu. V. Rizhnichenko and other members of the Institute of Physics of the Earth collaborated. There are 12 figures, no tables and 34 references, of which 10 are Slavic.

ASSOCIATION:Ac. Sc. of the USSR, Institute of Physics of the Earth.  
(Akademiya nauk SSSR, Institut fiziki Zemli)

SUBMITTED: January 29, 1957.

AVAILABLE: Library of Congress.

Card 2/2

*Shamina, O.G.*  
AUTHORS: Shamina, O.G. and Silayeva, O.I.

49-58-3-2/19

TITLE: Propagation of Elastic Impulses in Layers of Finite Thicknesses with Free Boundaries (Rasprostraneniye uprugikh impul'sov v sloyakh konechnoy moshchnosti so svobodnymi granitsami)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya Geofizicheskaya, 1958, No.3, pp. 302 - 316 (USSR).

ABSTRACT: In the model laboratory of the Institute of Physics of the Earth Ac.Sc. USSR, experiments were elaborated in 1956 under the direction of Yu.V. Riznichenko relating to the propagation of ultrasonic pulses in a layer as a function of the ratio  $d/\lambda$ , whereby a change in the  $d/\lambda$  ratio was effected by changing the thickness  $d$  of the layer. The shape and the predominant frequency of the emitted pulse were maintained constant. The value  $\lambda$  was the wavelength  $\lambda_{PM}$  of the longitudinal wave propagating in an infinite medium made of investigated material. The ultrasonic apparatus applied in these investigations was developed by the Geophysics Institute Ac.Sc. USSR (Geofizicheskiy institut AN SSSR) and has been described in detail in earlier work (Refs.13-15). In this paper, the technique of carrying out tests and some of the results are described, comparing the

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49-58-2/19

Propagation of Elastic Impulses in Layers of Finite Thicknesses with Free Boundaries

obtained experimental results with theoretical conclusions. The propagation of elastic pulses was studied by simulating on models seismic waves by means of an ultrasonic seismoscope. The transmitter and receiver of supersonic oscillations were piezo-electric micro-seismographs, containing seignette salt crystals of the  $45^\circ$  - X cut with the dimensions  $10 \times 10 \times 10$  mm and fundamental oscillation frequency of 150 kc during surge excitation. For amplifying the received oscillations, a wide-band amplifier with a pass band of 10-300 kc was used. The technique of observations was so chosen that the results obtained were in the form of seismograms similar to "multi-channel" seismograms in ordinary seismic prospecting. This permitted using the principle of phase coloration for distinguishing the individual types of waves and determining their speeds. As regards the type of the wave picture, the results can be sub-divided into three groups: case of thin layers ( $d/\lambda_{PM} = 0.18; 0.36; 0.6$ ); intermediate case ( $d/\lambda_{PM} = 0.85; 1.1$ ) and case of thick layers ( $d/\lambda_{PM} = 2.3; 4.5$ ). Hodographs and seismograms are given for various cases. It was found that

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49-58-3-2/19  
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elastic pulses can propagate only with two wave speeds, equalling the wave speed of the longitudinal waves in an infinitely thin layer  $v_{p_{\pi\lambda}}$  or the wave speed of longitudinal waves in an infinite medium  $v_{p_M}$ . The shape of the oscillations and the predominant wavelength depend on the thickness of the layer. In layers, the thickness of which approaches the wavelengths of the poles, a longitudinal wave was recorded at short distances from the source which propagates with a speed  $v_{p_M}$ ; with increasing distance from the source, a longitudinal wave with the speed  $v_{p_{\pi\lambda}}$  forms due to irregular disturbances. The length of the longitudinal wave which propagates with the speed of  $v_{p_{\pi\lambda}}$  changes with changing thickness of the layer, increasing with increasing layer thickness in such a way that the ratio  $d/\lambda_{p_{\pi\lambda}} \leq 0.25$ .

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Propagation of Elastic Impulses in Layers of Finite Thicknesses with  
Free Boundaries 49-58-3-2/19

The experimental results relating to the presence in layers of the thickness of the order of the wavelength of sliding, longitudinal waves with two differing speeds at various sections of the same profile and the determined dependence of the wavelength on the thickness of the layer can be usefully applied for analysis of seismic data obtained during a recording of primary waves. The carried out experiments on the propagation of elastic pulses in layers of finite thickness with free boundaries are also of interest in themselves and can be useful for developing further the theory of propagation of pulses in layers of finite thickness. Acknowledgments are made to Yu.V. Riznichenko, who directed the work described in this paper. There are 3 figures and 2 tables and 19 references, 12 of which are Russian, 6 English and 1 German.

ASSOCIATION: Ac.Sc. USSR Institute of Physics of the Earth  
(AN SSSR institut fiziki Zemli)

SUBMITTED: January 29, 1957

AVAILABLE: Library of Congress  
Card 4/4

S/049/59/000/03/002/019

AUTHORS: Riznichenko, Yu. V. and Shamina, O. G.

TITLE: On Elastic Waves<sup>✓</sup> in Layers of Finite Thickness  
(As Determined from Two-Dimensional Models)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1959, Nr 3, pp 344-360 (USSR)

ABSTRACT: This is a continuation of the work published in this journal (Nr 7, 1957). Ultrasonic pulses of 140 kc/s frequency were applied to a model layer (an ultrasonic apparatus IKL-4~~x~~ was used). The layer under investigation was made of brass, which was placed between Plexiglas and Duralumin. Velocity of elastic waves in the brass layer was intermediate between the velocities in Plexiglas and Duralumin. The properties of all three materials are given in Table 1, where  $V_P$ ,  $V_{P\parallel}$  and  $V_{PCT}$  - velocities of longitudinal

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waves in a material according to its shape,  $V_R$  -



S/049/59/000/03/002/019

On Elastic Waves in Layers of Finite Thickness (As Determined from Two-Dimensional Models)

velocity of surface waves,  $V_S$  - velocity of transverse waves,  $\sigma$  - Poisson's ratio,  $\rho$  - density,  $\rho V_{P_M}$  -

acoustic rigidity. The materials chosen for experiments were assumed to resemble a geological cross-section of the earth's crust. The wavelengths in layers of Plexiglas, brass and Duralumin are given in Table 2, where  $d$  - thickness of the layer. The longitudinal pulses in a thin brass plate ( $0.4 \times 0.4 \times 100$  cm) are shown in Fig 1 and the corresponding amplitudes (plotted against length of the plate) are in Fig 2. "Seismograms" and hodographs in Figs 3-12 represent respectively: a thin brass plate on Duralumin (Figs 3 and 4); a thin brass plate between Plexiglas and Duralumin (Figs 5 and 6); a thick brass plate ( $0.4 \times 6.0 \times 100$  cm) by itself (Figs 7 and 8); the

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S/049/59/000/03/002/019

On Elastic Waves in Layers of Finite Thickness (As Determined  
from Two-Dimensional Models)

same thick brass plate on Duralumin (Figs 9 and 10) and  
between Duralumin and Plexiglas (Figs 11 and 12). There  
are 14 figures, 2 tables and 14 references, 12 of which  
are Soviet and 2 English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli  
(Ac. Sc. USSR, Institute of Physics of the Earth)

SUBMITTED: December 2, 1957



Card 3/3

SOV/49-59-11-10/28

AUTHOR: Shamina, O. G.

TITLE: Absorption of Longitudinal and Transverse Waves in Specimens of Various Forms

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 11, pp 1619-1624 (USSR)

ABSTRACT: An experimental investigation has been carried out of the dependence of the absorption of longitudinal and transverse waves on the form of the specimen (plate, rod, massive block). The experiments were carried out under the direction of Yu. V. Riznich using the ultrasonic apparatus BI-4 (Ref 3). Piezo-electric elements were used for the production and detection of ultrasonic waves. Among the materials investigated were perspex, vinyl plastics, duralumin and cement. The experiments are illustrated schematically in Fig 1 in which 1 is the radiator, 2 is the detector and P, S refer to longitudinal and transverse waves, while R refers to surface waves. All the specimens other than those made of cement were in the form of rods having a square cross-section (0.4 x 0.4 x 70 cm) and plates (0.4 x 70 x 70 cm). In addition, 30 x 50 x 50 cm ✓

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SOV/49-59-11-10/28

Absorption of Longitudinal and Transverse Waves in Specimens of Various Forms

blocks of cement and 20 x 40 x 60 cm blocks of perspex were also investigated. In order to observe longitudinal and transverse waves simultaneously, the P, S line in Fig 1 was at an angle of  $45^\circ$  to the faces of the blocks. At a given frequency the absorption coefficients for longitudinal waves propagated in a rod, plate or a massive block, prepared from a given material, have different values. This was found to be the case in perspex, duralumin and vinyl plastics. The ratio of the absorption coefficients in a rod, plate and massive block, which was obtained experimentally, differs from the corresponding theoretical values reported by G. I. Gurevich in Ref 1 by not more than 10%. For a given predominating frequency, the absorption coefficients for longitudinal and transverse waves in plates made up of the above materials have practically the same value. The ratio of the absorption coefficients for transverse and longitudinal waves in massive blocks of the above

✓



6.8000

S/049/60/000/01/020/027  
E201/E191 82250

AUTHOR:

Shamina, O.G.

TITLE:

The Dependence of the Decay of Pulses in Layers of  
Finite Thickness on the Pulse Frequency Spectra

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1960, No 1, pp 151-154

TEXT:

Pulses of the same duration and with the same dominant frequency may have quite different frequency spectra if their envelopes are different (Ref 2). It is therefore quite possible that such pulses will decay in different ways in the same laminar medium. In view of this, absorption coefficients of longitudinal waves were measured in layers of finite thickness, using ultrasonic pulses. The experiments were carried out in the modelling laboratory of the Institute of Physics of the Earth, Acad.Sci.USSR under the direction of Yu.V. Riznichenko. Two ultrasonic pulse sources, used in seismic modelling (Ref 3) were employed. They were BI-4 and IKL-4. The principles of action and the frequency characteristics of the receiver channels (Fig 1) of these instruments were practically identical. There was, however, a

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The Dependence of the Decay of Pulses in Layers of Finite Thickness  
on the Pulse Frequency Spectra

considerable difference in the form of the pulses applied to the radiating crystal: in BI-4 this pulse had trapezoidal form and 10  $\mu$ sec duration, while in IKL-4 the pulse was exponential, of 2  $\mu$ sec duration. Fig 2 shows the form of the pulses recorded in a Plexiglas (Perspex) sheet of 3 mm thickness by the instruments BI-4 (curve 1) and IKL-4 (curve 2). Apart from experiments on Plexiglas sheets, absorption of longitudinal waves was studied in sheets of Vyniplast and Duralumin. In all these experiments the radiators and receivers were Rochelle salt crystals of 1 x 1 x 1 cm dimensions. Analysis of the amplitude curves showed that the numerical values of the absorption coefficients obtained with these two instruments are quite different. The values obtained with IKL-4 exceed the values obtained with BI-4 by a factor of 3 in the case of Duralumin, by a factor of 2 in the case of Vyniplast, and by a factor of 1.5 in the case of Plexiglas. Fig 3 shows the dependences of the longitudinal wave amplitudes on the distance along a Plexiglas sheet 3 mm thick: the BI-4 amplitudes are higher than the IKL-4 ones. Since a change of the sheet thickness alters ✓

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The Dependence of the Decay of Pulses in Layers of Finite Thickness on the Pulse Frequency Spectra

the dominant frequency and the form of the pulse, some experiments were carried out with Plexiglas sheets of 1, 2, 3, 6, 10 mm thickness. For all these sheets the ratio of the thickness to the wavelength satisfied the condition  $d/\lambda \leq 0.25$ . The results are given in Fig 4 in the form of the dependence of the absorption coefficient  $\alpha$  on the thickness  $d$ . Fig 4 shows that in very thin sheets ( $d = 1, 2$  mm) the difference between the BI-4 (curve 1) and IKL-4 (curve 2) absorption coefficients is very small, but when  $d$  is 6-10 mm this difference amounts to 70-80% with the IKL-4 absorption coefficient always higher. The frequency analysis of pulses of the same duration propagated in layers of finite thickness and having the same dominant frequency but a different waveform shows (Fig 5) that the wider the spectrum of a pulse in the low-frequency region the slower the decay of its amplitude. There are 5 figures and 7 Soviet references.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki zemli (Institute  
Card 3/3 of Physics of the Earth, Acad. Sci. USSR)

SUBMITTED: May 14, 1959

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86208

S/049/60/000/008/004/015

E201/E191

An Investigation of the Dynamic Characteristics of Longitudinal Waves in Layers of Various Thicknesses

was 0.18, 0.36, 0.61, 1.10, 2.30, and 4.50 for the thicknesses quoted above. Some experiments were carried out with large blocks of Plexiglas (200 x 470 x 530 mm). When the gliding waves were recorded in free Plexiglas layers (in air) the transducers were placed directly on the layer (Fig.1a). In recording of "principal waves" (golovnyye volny) the layer was placed in a bath of water at a depth of 4 cm. A radiator was placed directly on the layer, but a receiver was kept at the water surface (Fig.1b). Figs 2 and 8 show seismograms obtained in Plexiglas sheets (Fig.2) and in a Plexiglas block (Fig.8). Figs 3 and 5 show the dependence of the amplitude of the gliding waves on the distance from the radiator; Fig.3 gives this dependence as recorded, and Fig.5 gives the dependence corrected for spreading of the waves. Figs 4 and 6 give the same dependence as Figs 3 and 5, but for the principal waves. The theoretical hodographs of direct and reflected waves in Plexiglas sheets are shown in Fig.7. The dependence of the amplitude on the distance from the radiator is given in Fig.9 for the gliding waves travelling along a free

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S/049/60/000/002/004/015  
E201/E191

An Investigation of the Dynamic Characteristics of Longitudinal Waves in Layers of Various Thicknesses

boundary of a Plexiglas block and for the principal waves in a block immersed in water. It was found that the velocity, the waveform, the predominant period and the attenuation of the gliding waves in a free layer and the principal waves from a layer in water, all depend on the layer thickness. The thinner the layer, the shorter the distance from the radiator at which the layer can be regarded as a thin plate. The behaviour of the wave amplitude is the most reliable sign of formation of  $V_{pp}$  waves.

Acknowledgements are made to O.I. Silaveva and R.P. Solov'yeva for their help in preparation of this paper for press, and to N.I. Davydova for her advice.

There are 9 figures, 1 table and 7 references: 6 Soviet and 1 English.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki zemli  
(Physics of the Earth Institute, AS USSR)

SUBMITTED: September 24, 1959

Card 3/3

86226

6.8000(3201,1099,1162)  
9.9865

S/049/60/000/009/004/004

E201/E191

AUTHORS: Silayeva, O.I., and Shamina, O.G.

TITLE: Absorption of Ultrasound in Granites

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya,  
1960, No. 9, pp. 1354-1359

TEXT: The paper begins with a short review of published work on absorption of sound in rocks, measured in situ or in laboratory. The authors describe measurements of the absorption coefficients  $\alpha_T$  and  $\alpha_S$  in massive blocks of granite (the subscripts T and S refer to longitudinal and transverse waves respectively). The absorption coefficients were measured using ultrasonic pulses of 20-200 kc/s frequency. The authors measured also the absorption coefficients for longitudinal and transverse waves in Plexiglas. Granites with different grain sizes and from various locations were supplied by the Institute of Petrography of Ore Deposits, AS USSR (B.P. Belikov) and by the Stone-cutting Workshop No. 3 of Mosgorispolkom. Measurements were carried out in the Modelling Laboratory of the Physics of the Earth Institute, AS USSR, under the direction of Yu.V. Ryznichenko; F.V. Lebedeva took part in these experiments. In experiments with granite, ultrasonic

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E201/E191

# Absorption of Ultrasound in Granites

instruments A-4 (IKL-4) and A-5 (IKL-5) were used; a laboratory seismoscope LS (LS) was used in tests on Plexiglas. In both cases Potchelle salt transducers were employed. An ultrasonic beam was directed at an angle of  $45^\circ$  to the sample face and the principle of phase correlation was employed in measurement (Ref. 15). Oscillograms were obtained by photographing the screen of a C.R.O.; a seismogram obtained for one type of granite is shown in Fig. 2 (P, S and R represent longitudinal, transverse and Rayleigh waves respectively). Fig. 3 gives the dependence of the P, S and R wave amplitudes on the distance from the source of ultrasound, constructed from the seismogram of Fig. 2. Figs. 4 and 5 show the frequency dependences of the absorption coefficients for longitudinal and transverse waves in granites. The frequency dependences of the absorption coefficients for longitudinal and transverse waves in Plexiglas are given in Fig. 1. The results obtained for granites confirm the Coulomb friction theory. According to this theory the decrements  $\delta_p$  and  $\delta_s$  should be

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Absorption of Ultrasound in Granites

equal and independent of frequency (Ref.19); this was found to be true for granites (c.f. cols 5 and 6 of a table on page 1358).

There are 5 figures, 1 table and 19 references: 9 Soviet, 9 English and 1 German.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki zemli  
(Physics of the Earth Institute, AS USSR)

SUBMITTED: February 13, 1960

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26977

S/049/60/000/012/001/011  
D214/D305

9.9865(1109,1327)

AUTHORS: Riznichenko, Yu.V., and Shamina, O.G.

TITLE: On multiply reflected and transmitting waves

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya,  
no. 12, 1960, 1689 - 1706

TEXT: The present authors report a more detailed account of the theory developed by Yu.V. Riznichenko (Ref. 2: Dokl. AN SSSR, 126, no. 4, 1959). The theory was checked experimentally with the aid of models and the pulse ultrasonic method described by Yu.V. Riznichenko, B.N. Ivakin, and V.R. Bugrov (Ref. 3: Izv. AN SSSR, ser. geofiz., no. 2, 1959). The problem is formulated as follows: Consider a multilayer medium which consists of a uniform elastic half-space with thin-layer inclusions, whose elastic properties differ from those of the main medium. The layers form a plane parallel periodic sequence with a constant spacing  $h$ . The source of seismic oscillations  $S$  produces short pulses which are then applied to the free surface  $OA$  of the half-space. The seismic waves are observed

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D214/D305

On multiply reflected and ...

the phenomenon of total internal reflection from the free surface OA is automatically allowed for. If  $p + r$  is less than unity, i.e. there is some effective absorption  $q$ , then, subject to the above assumptions, there is also absorption at the free surface OA. This is consistent with real media, since seismic waves reaching the earth's surface from below may lose a fraction of their energy, owing to the non-perfect elasticity of the surface layers and scattering effects due to surface irregularities. As a first approximation it is assumed that  $q$  is much smaller than  $p$ . Extensive formulas are then derived giving the number of waves and their intensities at A. In order to determine the total intensities at any point M, it is sufficient to calculate the intensity of all such waves in the medium shown in Fig. 1b and then divide the result by 2. All the calculations are confined to plane waves. The theory has been checked by studying the transmission and reflection of waves in thin layers of water, glass and iron. The emitters and receivers were in the form of piezoelectric probes (Rochelle salt). The experimental arrangement is illustrated by Fig. 3. A detailed study was made of the form, amplitude and period of the waves as a function of the

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On multiply reflected and ...

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angle of incidence and the number of layers. For transmitted waves it was found that the form of the waves remains practically independent of the angle of incidence. The wave amplitude increases monotonically with the angle of incidence. The increase is faster for a larger number of layers. In the latter case the variation becomes linear and is more rapid for iron than for glass. The period of the transmitted wave is larger than that of the incident wave and increases with the number of layers. The increase is faster for iron than for glass. For reflected waves the results are summarized as follows. The form of the wave depends on the angle of incidence but only very slightly. The amplitude decreases slightly as the angle of incidence approaches the critical angle, and thereafter begins to increase, particularly for a large number of layers. The increase is larger for glass than for iron. The period of the reflected wave is smaller than that for the incident wave, and decreases slightly with the number of layers. In the region of the critical angle no special regularities were observed. The theoretical and experimental studies showed that when the structure of the medium is sufficiently complex the scattered waves become more inten-

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On multiply reflected and ...

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D-11 D-105

se than the main reflection, and a point is reached where the reflection is practically indistinguishable. This is analogous to scattering light in a turbid medium, where for high turbidities an object located in the medium disappears altogether. Model experiments in which the covering medium has a strong velocity and density differentiation provide information about the general behavior of the waves. A scattering medium with large differentiation and a small number of layers should, to some extent, behave as a medium with weaker differentiation, but a large number of layers. There are 14 figures, 1 table and 8 Soviet-bloc references.

Card 5/7

SHAMINA, O.G., seismolog; VINOGRADOV, S.D., seismolog; SILAYEVA, O.I., seismolog; BARLAS, V.Ya., seismolog; SHAMAYEVA, L.A., seismolog; RIZNICHENKO, Yu.V., red.; PANTAYEVA, V.A., red.; RYBKINA, V.P., tekhn. red.

[Weak earthquakes] Slabye zemletriaseniia. Moskva, Izd-vo inostr. lit-ry, 1961. 533 p. (MIRA 15:1)

1. Institut fiziki Zemli AN SSSR (for Shamina, Vinogradov, Silayeva, Barlas, Shamayeva).  
(Earthquakes)

24808  
S/049/61/000/004/001/008  
D257/D306

9.9465  
AUTHORS:

Riznichenko, Yu.V., Shamina, O.G., and Khanutina, R.V.  
TITLE: Elastic waves with a generalized velocity in two-dimensional bimorphous models

PERIODICAL: Akademiya nauk SSSR. Izvestiya, Seriya geofizicheskaya, no. 4, 1961, 497 - 519

TEXT: The present paper is an extension of the work of J. Oliver (Ref. 7: Earthq. Not., 27, No. 4, 1956) who suggested the use of layered two-dimensional models for seismic waves in media with parameters varying continuously in space. The models are sheets of variable or constant thickness which are stuck together in the same way as plywood; seismic waves are represented by ultrasonic pulses. The present authors give a theory of long-wavelength longitudinal, transverse and surface waves in bimorphous (two-layered) and polymorphous (many-layered) models. An experimental work on these waves is also reported; its aim was to find the possibilities and li-

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S/049/61/000/004/001/008  
D257/D306

Elastic waves with a ...

imitations of two-layered and many-layered models. The work was limited to a study of vibrations, whose displacement vector lies in the plane of the two-dimensional model. These vibrations are analogous to longitudinal, transverse SV and Rayleigh surface waves in three-dimensional media. Elastic properties of quasi-anisotropic media, consisting of successive isotropic layers with different properties, were discussed in the three-dimensional case by Yu.V. Riznichenko (Ref. 13: Izv. AN SSSR, Ser. gogr. i geofiz. 8, no. 6, 1949). Riznichenko's method is now used in the two-dimensional case. It is assumed that the two layers in the model are thin compared with the wavelength of elastic waves. General equations of the static theory of elasticity and boundary conditions at the faces of the components of the model, deformed by long longitudinal P and transverse S waves, are used to calculate the effective longitudinal and transverse elastic moduli and the velocities of propagation of P and S waves. The expressions are obtained first for the bimorphous (two-layered) case and are then generalized to a many-layered model. The velocities of propagation of long Rayleigh surface waves are calculated

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D257/D306

Elastic waves with a ...

for single-layered and many-layered plates. A nomogram is given which relates the velocities of P, S and R waves with the Poisson's ratio  $\sigma$  for a massive sample and a plate. The nomogram can be used to find the effective value of  $\sigma$  for a massive sample modelled by a plate. The theoretical expressions were tested by experiments using an ultrasonic pulse source ИКЛ-4 (IKL-4). Piezoelectric Rochelle salt transducers of X-450 cut were used; their dimensions were 10 x 10 x 10, 20 x 20 x 20 and 60 x 40 x 10 mm. The techniques of longitudinal profiles and diagonal transmission were employed to separate longitudinal and transverse waves. Good contact between the working surfaces of the transducers and models was ensured by using castor oil. Models were made of thin sheets of brass, Duralumin, iron, Plexiglas (Perspex) and Getinaks (paper-filled phenolformaldehyde resin). The two-layered models were stuck together by a thin layer of paraffin wax, rubber plasticizer or glue БФ-2 (BF-2). The maximum dimensions of the models were 500 x 600 x 8 mm. The experiments showed that the theory given in the present paper is essentially correct in the case of long waves. It was found that

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D257/D306

Elastic waves with a ...

if the thickness (h) of two-layered plates is much less than the elastic wavelength (in practice  $h/\lambda \leq 0.1$ ), then P, S and R waves are generated in the plates. The attenuation of longitudinal and transverse waves in two-layered plates obeys the same law as in single-layered plates. This law is

$$A = A_0 \frac{\exp(-\alpha x)}{x^{1/2}},$$

where  $A_0$  is a constant,  $\alpha$  is the absorption coefficient per unit path length, and the term  $x^{1/2}$  allows for spreading of the wave energy along a circular front. The absolute values of the absorption coefficient  $\alpha$  for P waves, and especially for S waves, are larger in the two-layered model than in the individual plates (layers), of which the model is made. A "gradient" medium, in which velocity varies with depth, was modelled by two wedge-shaped plates stuck together. It was found that in such a medium even a small variation of velocity with depth, which cannot be detected by means of hodographs, affects very strongly the amplitudes of the longitudinal waves. There are 16 figures, 2 tables and 24 references: 17

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21808

S/049/61/000/004/001/008

D247/D306

Elastic waves with a ...

Soviet-bloc and 7 non-Soviet-bloc. The 4 most recent references to English-language publications read as follows: E. Howes, Tejada-Flores and R. Lee, J. Acoust. Soc. Amer., 25, no. 5, 1953; J. Oliver, F. Press and M. Ewing, Geophys., 19, no. 2, 1954; J. Oliver, Earthq. Not., 27, no. 4, 1956; F. Press, Geophys., 22, no. 2, 1957.

ASSOCIATION: Akademiya nauk SSSR, institut fiziki zemli (Institute of Physics of the Earth, Academy of Sciences, USSR)

SUBMITTED: October 29, 1960

Card 5/5

SAMINA, O. G. [Shamina, O. G.]

Dynamic characteristics of the longitudinal waves in the layers of various width. *Analele geol geogr* 15 no.4:67-81 O-D '61.

(Seismic waves)

SHAMINA, O.G.; LEBEDEVA, F.V.

Transformed waves on the models of the earth's crust and mantle.  
Izv. AN SSSR. Ser.geofiz. no.5:610-619 My '62. (MIRA 15:3)

1. Institut fiziki Zemli AN SSSR.  
(Seismic waves)

S/049/63/000/002/002/008  
D207/D307

AUTHORS: Riznichenko, Yu. V., and Shamina, O. G.

TITLE: Modeling of longitudinal waves in the upper mantle of the earth

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 2, 1963, 223-247

TEXT: The article reviews Western and Soviet literature (up to 1961) on the wave velocity in the upper mantle and the structure of the mantle. This review is followed by an account of measurements of the propagation of ultrasonic pulses, from a generator ИКЛ-4 (IKL-4), in models of the upper mantle consisting of two metal sheets (iron and copper, or iron and Wood's alloy) joined together. Models were constructed representing four cases: (1) Jeffreys' description of the upper mantle with the wave velocity in it ( $v'$ ) increasing linearly with depth; (2)  $v'$  decreasing linearly with depth; (3)  $v' = \text{const.}$ ;

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D207/D307

# Modeling of longitudinal...

(4) Gutenberg's description with a velocity minimum in the upper mantle. In case (1) the wave pattern was similar to that in a uniform mantle or case (3). In case (2) with a wave source in the "mantle": (i) a diffracted quasi-head wave was observed in the "crust" due to a diffracted wave in the "mantle" gliding along the Mohorovičić boundary; (ii) the period of the quasi-head wave was considerably longer than the period of the normal refracted wave formed in the uniform mantle  $v' = \text{const.}$ ; (iii) this period varied strongly with distance from the source; (iv) the quasi-head wave decayed several times more rapidly than the normal refracted wave. In case (4) an effective lower boundary of the low-velocity layer (acting as a waveguide) was observed; it was similar to the boundary postulated by B. B. Golitsyn before the First World War. Reflected and refracted (similar to head) waves were observed at this boundary. Acknowledgements are made to the staff members of the Laboratoriya modelirovaniya Instituta fiziki Zemli AN SSSR (Modeling Laboratory, Institute of Physics of the Earth, AS USSR), R. V.

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Modeling of longitudinal...

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D207/D307

Khanutina and F. V. Lebedeva, for participation in experiments and analysis of the results. There are 70 references and 17 figures.

ASSOCIATION: Institut fiziki Zemli AN SSSR (Institute of Physics of the Earth, AS USSR)

SUBMITTED: August 20, 1962

Card 3/3

YAN, Y., SHAPING O. G.

Study of the shadow zone by modeling the earth's crust and upper  
mantle. Publ. Ser. ge. seism. no. 15:11-21 1963. (MIRA 17:4)



RIZNICHENKO, Yu.V.; SHAMINA, O.G.

Comparison of amplitude curves developed on a wave-guide  
model of the earth's mantle, and seismic data. Izv. AN  
SSSR Ser. geofiz. no.8411/77-11/71. Ag 1974 (MIRA 1728)

1. Institut fiziki Zemli AN SSSR.

L 1674-66 EWT(1)/EWA(h) CW

ACCESSION NR: AP5017025

UR/0387/65/000/003/0011/0021  
534.21

AUTHOR: Shamina, O. G.

TITLE: Attenuation of head waves from thin layers at rigid and  
"sliding" contacts

SOURCE: AN SSSR. Izvestiya. Fizika zemli, no. 3, 1965, 11-21

TOPIC TAGS: seismic modeling, ultrasonic wave, head wave, micro-  
seismology

ABSTRACT: Ultrasonic microseismic, modeling experiments were conducted in the megacycle range using solid (epoxy resin) and liquid three dimensional models to investigate the effect of layer thickness on the attenuation of head waves by thin layers. These experiments demonstrated that, with a decrease in layer thickness, attenuation decreases at a "sliding" contact and increases at a rigid contact. The coefficient of wave projection at a rigid contact depends on the relationship between the relative acoustic hardness of the layer and of the medium, and decreases with an increase in the difference between them. In models with a shape difference between the acoustic

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ACCESSION NR: AP5017025

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hardness of the layer and that of the medium, the coefficient of wave projection at a "sliding" contact is essentially to zero whether the surrounding medium is solid or liquid. With a decrease in the difference between the acoustic hardness of the layer and that of the medium, the coefficient of projection tends to deviate considerably from zero. The experiments showed that up to  $d/\lambda = 0.07$ , with a rigid contact, the relationship between the coefficient of projection and layer thickness is almost linear, and that there are no limiting  $d/\lambda$  values which would prevent the appearance of head waves at smaller  $d/\lambda$  values. This indicates that in nature, when a layer is in contact with a rigid medium, the difficulty in registering head waves increases as the thickness of the layer increases, and conversely, that no difficulties are encountered if the contact is a "sliding" one, such as exists with water-saturated argillaceous intercalations. [SP]  
Orig. art. has: 6 figures.

ASSOCIATION: Institut fiziki Zemli, Ak. Inzh. nauk SSSR (Institute of the Physics of the Earth, Academy of Sciences, SSSR)  
44,55

Card 2/3

L 1674-66

ACCESSION NR: AP5017025

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ACC NR: AP7001908

SOURCE CODE: UR/0387/66/000/012/0003/0010

AUTHOR: Shamina, O. G.

ORG: Institute of Physics of the Earth, Academy of Sciences SSSR (Institut fiziki Zemli Akademii nauk SSSR)

TITLE: Experimental investigations of necessary and adequate waveguide characteristics

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 12, 1966, 3-10

TOPIC TAGS: upper mantle, earth crust, seismic modeling, ultrasonic micromodeling

ABSTRACT: Experimental investigations of solid three-dimensional models of the upper mantle with symmetrical and asymmetrical waveguides have yielded wave characteristics which indicate the existence of a strong waveguide (a strong waveguide is such that maximum relative change in velocity  $\delta-v$  in the waveguide is of the order of several percent). Investigations were made on micromodels consisting of epoxy resin layers containing varying amounts of powdery quartz sand. The ultrasonic testing procedures have been described in detail by O. G. Shamina [Izv. AN SSSR, ser. geofiz., no. 7, 1965]. Modeling scales were: 1 mm - 10 km, 1 sec - 4 sec. Epicentral distances up to 2500 km, depths to 300 km,

Cord 1/2

UDC: 534.21:550.311

CHERNYKH, Klimentiy Fedos'yevich; SHAMINA, V.A., red.; TSAR'KOVA,  
Z.I., red.; VODOLAGINA, S.D., tekhn. red.

[Linear theory of shells] Lineinaia teoriia obolochek. Le-  
ningrad, Izd-vo Leningr. univ. Pt.1. [General theory] Ob-  
shchaia teoriia. 1962. 273 p. (MIRA 15:4)  
(Elastic plates and shells)

CHERNYKH, K.F.; SHAMINA, V.A.

Theory of toroidal shells. Part 1. Issl. po uprug. i plast.  
no.2:247-346 '63. (MIRA 16:8)  
(Elastic plates and shells)

SHAMINA, V.A. (Leningrad)

Inverse symmetric bending of nearly cylindrical shells of  
revolution. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.3:  
128-133 My-Je '63. (MIRA 16:8)  
(Elastic plates and shells)



SHAMINA, V.A.

Equations in the inversely symmetrical case for a shell  
of revolution with meridional ribs. Issl. po uprug. i plast.  
no.3:124-137 '64. (MIRA 17:6)

SHAMINA, V.A.

Equations for the inversely symmetric case of a shell of revolution reinforced with meridional ribs. Issl. po uprug. i plast.  
no.3:124-137 '64. (MIRA 18:4)

PROKOF'YEVA-BEL'GOVSKAYA, A.A.; SHAMINA, Z.B.

Studies on the structure of *Actinomyces streptomycini* Kras  
colonies. Mikrobiologiya 29 no.1:56-61 Ja-F '60.

(MIRA 13:5)

1. Institut biofiziki AN SSSR.  
(ACTINOMYCES culture)

PROKOF'YEVA-BEL'GOVSKAYA, A.A.; KAPITONOVA, O.N.; SHAMINA, Z.B.

Radiosensitivity of actinomycetes strains and species as related  
to the structural characteristics of their nuclear elements.  
Radiobiologiya 1 no.1:112-118 '61. (MIRA 14:7)

1. Institut biologicheskoy fiziki AN SSSR i Vsesoyuznyy nauchno-  
issledovatel'skiy institut antibiotikov, Moskva.  
(ACTINOMYCES) (RADIATION--PHYSIOLOGICAL EFFECT)  
(CELL NUCLEI)

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S/560/61/000/010/011/016  
D298/D302

AUTHORS:

Glembotskiy, Ya. L., Prokof'eva-Bel'govskaya,  
A. A., Shamina, Z. B., Gol'dat, S. Yu.,  
Khvostova, V. V., Valeva, S. A., Eyges, N. S.,  
and Nevzgodina, L. V.

TITLE:

Effect of cosmic flight factors on the heredity  
and development of actinomycetes and higher  
plants

SOURCE:

Akademiya nauk SSSR. Iskusstvennyye sputniki  
Zemli. no. 10. Moscow, 1961, 72-81

TEXT: The second cosmic space-ship was utilized to study  
the combined genetic effect of cosmic flight on organisms. This  
article deals with the study of the following cultures: actino-  
myces erythreus, stems 2577 and 8594, and actinomyces strepto-  
mycini Kras., stem MC-3 (LS-3). After the cosmic flight, the

Card 1/4

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S/560/61/000/010/011/016  
D298/D302

Effect of cosmic...

to be high (about 5%), the tempo of mitosis fell. The conditions of cosmic flight stimulated the growth intensity compared to the standards. The following microscopic morphology features of the experimental cultures confirm this fact: (a) development of a more basiphyllic and powerful gif, (b) growth of a thicker intertwining of mycelia, (c) lengthy growth of well-developed gifs. Data on the survival of the 8594 and 2577 stems are not completely valid since the concentrations of the spore suspensions of the control and experimental cultures were determined visually from the suspension turbidity. The morphology changes in the colonies were investigated on the act. erythreus 8594 and act. aureofaciens LSB-220<sup>1</sup>. Obtained data show that the morphology changes in the actinomyces, both in the experiment (cosmic flight) and control, lie within the same limits. The cytology analysis of agricultural plant seeds affected by cosmic flight was conducted by studying the chromosome impairment in the ana- and telophases of the first mitosis. Obtained results

Card 3/4

PROKOF'YEVA-BEL'GOVSKAYA, A.A.; SHAMINA, Z.B.

Studies on the structure of colonies of a highly active radiation  
mutant of Actinomyces streptomycini Kras. Mikrobiologiya 30 no.2:  
203-206 Mr-Apr '61. (MIRA 14:6)

1. Institut biofiziki AN SSSR.  
(ACTINOMYCES) (RADIATION—PHYSIOLOGICAL EFFECT)

PROKOP'YEVA-BEL'GOVSKAYA, A.A.; SHAMINA, Z.B.

Microscopic structure of actinomycetic colonies. *Actinomyces griseus*.  
Mikrobiologiya 30 no.5:863-866 S-O '61. (MIRA 14:12)

1. Institut biofiziki AN SSSR.  
(ACTINOMYCES GRISEUS)



GLEMBOTSKIY, Ya.L.; PROKOF'YEVA-BEL'GOVSKAYA, A.A.; SHAMINA, Z.B.;  
KHOVOSTOVA, V.V.; VALEVA, S.A.; EYGES, N.S.; NEVZDOGINA, L.V.

Effect of space flight factors on the heredity and develop-  
ment in actinomycetes and higher plants. Probl.kosm.biol.  
1:236-247 '62. (MIRA 15:12)  
(SPACE FLIGHT—PHYSIOLOGICAL EFFECT)

1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 26

1. *Phragmites australis* (Cav.) Trin. ex Steud. *Phragmites*, 1895.  
 2. *Phragmites australis* (Cav.) Trin. ex Steud. *Phragmites*, 1895.

• Importance of the following factors, which, influence the behavior of the individual, that is:

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APPROVED FOR RELEASE: 08/23/2000

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PROKOF'YEVA-BEL'GOVSKAYA, A.A.; KAPITONOVA, O.N.; SHAMINA, Z.M.

Cytological study of the changes in Actinomyces cells caused by  
radiation. TSitologiya 4 no.1:18-26 Ja-F '62. (MIRA 15:4)  
(RADIATION--PHYSIOLOGICAL EFFECT) (ACTINOMYCES)

SHAMIRGON, S.A.

[Acid-resistant mine pumps of high-chromium steel] Kislotosostoikiye  
shakhtnye nasosy iz vysokokhromistoi stali. Moskva, Ugletekhnizdat,  
1946. 29 p. (MLRA 9:12)  
(Mine pumps)

USSR/Metals  
Foundry Practice  
Clays

Mar 1947

"Foundry Loams," I. B. Kumanin, Eng'r, 4 pp

"Vest Inzher i Tekh" No 3

The author attempts to show the relationship between the technological characteristics of loams their inherent qualities. In addition, he discusses the mineral composition of loams, their degree of dispersion and their electrochemical activity. These experiments were conducted at the Central Research and Investigation Laboratory of the Union of Foundrymen.

ID

26750

USSR/Metals  
Foundries  
Foundry Practice

Mar 1947

"Foundry Designing News," S. A. Shamirgon, Eng'r,  
51 pp

"Vest Inzher i Tekh" No 3

Well-illustrated article discussing some of the new designs in foundries developed to improve their operating efficiency. Diagrams of various floor plans and equipment layouts, and several photographs of equipment actually in use. Much of the equipment appears to be manually operated.

ID

26749

USSR/Castings, Centrifugal  
Tractors

Jun 1947

"Centrifugal Casting of Tractor Bushings for Mass  
Production," S. A. Shamirgon, 6 pp

"Vestnik Mashinostroyeniya" Vol XXVII, No 5

Fully illustrated with cross sections and photo-  
graphs of equipment.

12T71

USSR/Engineering - Casting

Card 1/1            Pub. 128 - 10/25

Authors        :    Shamirgon, S. A., Assist. Prof.

Title           :    The technology of centrifugal casting of bushings for tractor engines

Periodical    :    Vest. mash. 35/4, 41-47, Apr 1955

Abstract       :    The economical advantages derived through centrifugal casting of bushings for agricultural tractor engines are discussed. The technology of centrifugal casting as applied by various Soviet Farm Tractor plants is explained. It is stated in the appendix that the Americal D-casting system (named after its inventor Dietert) published in the Foundry Trade Journal No. 1932 for 1953, is a perfect repetition of the casting method employed by the author in the USSR during 1937-1938. Eleven references: 2 USA and 9 USSR (1938-1953). Table; drawings; illustrations.

Institution    :    .....

Submitted      :    .....



BELORUSETTS, Boris Mikhaylovich; ROSSIYANOV, D.D., inzh., retsenznet;  
SHAMIRGON, S.A., inzh., retsenznet; BROMLEY, M.F., kand.tekhn.  
nauk, red.; BARYKOVA, G.I., red.izd-va; EL'KIND, V.D., tekhn.red.

[Safety engineering and hygiene in the production of iron and  
steel shape castings] Tekhnika bezopasnosti i sanitaria pri  
proizvodstve chugunnogo i stal'nogo fasonnogo lit'ia. Moskva,  
Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 235 p.  
(Founding) (MIRA 11:5)

SLEZNIKOV, G.I., inzh.; ANIENKOVA, Ye.G., kand.tekhn.nauk; GRUDOV, P.P.,  
kand.tekhn.nauk [deceased]; DEGTYARENKO, N.S., kand.tekhn.nauk;  
IMSHENNIK, K.P., kand.tekhn.nauk; KASENKOV, M.A., kand.tekhn.  
nauk; MEL'NIKOV, N.F., inzh.; MALOV, A.N., kand.tekhn.nauk;  
POKROVSKIY, B.V., inzh.; POLYAK, S.M., kand.tekhn.nauk; POLYANSKIY,  
A.N., kand.tekhn.nauk; POPILOV, L.Yu., inzh.; POPOV, V.A., kand.  
tekhn.nauk; RUBINSHTEYN, S.A., kand.tekhn.nauk; SOKOLOV, N.L.,  
inzh.; SHAMIRGON, S.A., inzh.; SHESTOPAL, V.M., kand.tekhn.nauk;  
SHUKHOV, Yu.V., kand.tekhn.nauk; ACHERKAN, N.S., prof., doktor  
tekhn.nauk, glavnyy red.; VLADISLAVLEV, V.S., red. [deceased];  
POZDNYAKOV, S.N., red.; ROSTOVYKH, A.Ya., red.; STOLBIN, G.B.,  
red.; CHERNAVSKIY, S.A., red.; KRYLOV, V.I., inzh, red.;  
KARGANOV, V.G., inzh., red.graficheskikh rabot; SOKOLOVA, T.F.,  
tekhn.red.

[Metalworking handbook in five volumes] Spravochnik metallista  
v piati tomakh. Chleny red.soveta: V.S.Vladislavlev i dr.  
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Vol.3. .  
Book 2. [Ferrous and nonferrous metal products] Sortament chernykh  
i tsvetnykh metallov. 1958. 204 p. Vol.4. 1958. 778 p. (MIRA 12:1)  
(Metalwork)

SHUB, Il'ya Yefimovich, kand. tekhn. nauk; SOROKIN, Pavel Vasil'yevich,  
kand. tekhn. nauk; SHAMIRGON, S.A., dots., retsenzent; SOKOLOV, A.N.,  
dots., kand. tekhn. nauk; red.; CHPAS, M.A., red. izd-va;  
SPERANSKAYA, O.V., tekhn. red.

[Precision casting] Tochnoe lit'e po vyplavliaemym modeliam. Moskva,  
Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 229 p.  
(Precision casting) (MIRA 11:7)

25(2), (7)

PHASE I BOOK EXPLOITATION

SOV/1437

Spravochnik metallista v pyati tomakh, t. 4, (Metals Engineering Handbook in Five Volumes, Vol 4) Moscow, Mashgiz, 1958. 778 p. 50,000 copies printed.

Ed. (Title page): A.N. Malov, Candidate of Technical Sciences; Ed. (Inside book): V.I. Krylov, Engineer; Tech. Ed.: T.F. Sokolova; Editorial Board: N.S. Acherkan (Chairman and Chief Ed.), Doctor of Technical Sciences, Professor; V.S. Vladislavlev, Professor (Deceased); A.N. Malov, Candidate of Technical Sciences; S.N. Pozdnyakov; A. Ya. Rostovkyh; G.B. Stolbin; and S.A. Chernavskiy; Managing Ed. for Reference Literature: V.I. Krylov, Engineer.

PURPOSE: This handbook may be useful to technicians and engineers working in the field of machine design and production.

COVERAGE: This volume covers the following topics: casting, forging, pressing, stamping, welding, electric methods of machining, and metal cutting. Recently developed electrical methods of machining which are not yet used in production are described; viz., the so-called "electropulse" and "electrohydraulic" methods. No personalities are mentioned. There are 79 Soviet references.

Card 1/9

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Metals Engineering Handbook (Cont.)

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